

PATENT COOPERATION TREATY

PCT

NOTIFICATION OF ELECTION

(PCT Rule 61.2)

From the INTERNATIONAL BUREAU

To:

United States Patent and Trademark
Office
(Box PCT)
Crystal Plaza 2
Washington, DC 20231
ETATS-UNIS D'AMERIQUE

in its capacity as elected Office

Date of mailing (day/month/year) 19 August 1998 (19.08.98)	Applicant's or agent's file reference ME003
International application No. PCT/EP98/00162	Priority date (day/month/year) 13 January 1997 (13.01.97)
International filing date (day/month/year) 13 January 1998 (13.01.98)	
Applicant AISA, Valerio	

1. The designated Office is hereby notified of its election made:

☒ in the demand filed with the International Preliminary Examining Authority on:

31 July 1998 (31.07.98)

☐ in a notice effecting later election filed with the International Bureau on:2. The election ☒ was☐ was not

made before the expiration of 19 months from the priority date or, where Rule 32 applies, within the time limit under Rule 32.2(b).

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland	Authorized officer J.M. Vivet
Facsimile No.: (41-22) 740.14.35	Telephone No.: (41-22) 338.83.38

PATENT COOPERATION TREATY

PCT

INFORMATION CONCERNING ELECTED
OFFICES NOTIFIED OF THEIR ELECTION

(PCT Rule 61.3)

From the INTERNATIONAL BUREAU

To:

MERLONI ELETTRODOMESTICI S.P.A.
Ufficio Brevetti e Marchi
Via Pinerolo, 25
I-10060 None Torinese
ITALIE

Date of mailing (day/month/year) 19 August 1998 (19.08.98)		
Applicant's or agent's file reference ME003		IMPORTANT INFORMATION
International application No. PCT/EP98/00162	International filing date (day/month/year) 13 January 1998 (13.01.98)	Priority date (day/month/year) 13 January 1997 (13.01.97)
Applicant MERLONI ELETTRODOMESTICI S.P.A. et al		

1. The applicant is hereby informed that the International Bureau has, according to Article 31(7), notified each of the following Offices of its election:

AP : GH, GM, KE, LS, MW, SD, SZ, UG, ZW

EP : AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE

National : AU, BG, BR, CA, CN, CZ, DE, GB, IL, JP, KP, KR, MN, NO, NZ, PL, RO, RU, SE, SK, US,
VN

2. The following Offices have waived the requirement for the notification of their election; the notification will be sent to them by the International Bureau only upon their request:

EA : AM, AZ, BY, KG, KZ, MD, RU, TJ, TM

OA : BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG

National : AL, AM, AT, AZ, BA, BB, BY, CH, CU, DK, EE, ES, FI, GE, GH, HU, ID, IS, KE, KG, KZ,
LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MW, MX, PT, SD, SG, SI, SL, TJ, TM, TR, TT, UA, UG, UZ,
YU, ZW

3. The applicant is reminded that he must enter the "national phase" before the expiration of 30 months from the priority date before each of the Offices listed above. This must be done by paying the national fee(s) and furnishing, if prescribed, a translation of the international application (Article 39(1)(a)), as well as, where applicable, by furnishing a translation of any annexes of the international preliminary examination report (Article 36(3)(b) and Rule 74.1).

Some offices have fixed time limits expiring later than the above-mentioned time limit. For detailed information about the applicable time limits and the acts to be performed upon entry into the national phase before a particular Office, see Volume II of the PCT Applicant's Guide.

The entry into the European regional phase is postponed until 31 months from the priority date for all States designated for the purposes of obtaining a European patent.

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland Facsimile No. (41-22) 740.14.35	Authorized officer: J.M. Vivet Telephone No. (41-22) 338.83.38
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PCT

**NOTICE INFORMING THE APPLICANT OF THE
COMMUNICATION OF THE INTERNATIONAL
APPLICATION TO THE DESIGNATED OFFICES**

(PCT Rule 47.1(c), first sentence)

From the INTERNATIONAL BUREAU

To:
MERLONI ELETTRODOMESTICI S.P.A.
Ufficio Brevetti e Marchi
Via Pinerolo, 25
I-10060 None Torinese
ITALIE

Date of mailing (day/month/year) 16 July 1998 (16.07.98)		
Applicant's or agent's file reference ME003		IMPORTANT NOTICE
International application No. PCT/EP98/00162	International filing date (day/month/year) 13 January 1998 (13.01.98)	Priority date (day/month/year) 13 January 1997 (13.01.97)
Applicant MERLONI ELETTRODOMESTICI S.P.A. et al		

1. Notice is hereby given that the International Bureau has communicated, as provided in Article 20, the international application to the following designated Offices on the date indicated above as the date of mailing of this Notice:
AU, BR, CA, CN, EP, IL, JP, KP, KR, NO, PL, US

In accordance with Rule 47.1(c), third sentence, those Offices will accept the present Notice as conclusive evidence that the communication of the international application has duly taken place on the date of mailing indicated above and no copy of the international application is required to be furnished by the applicant to the designated Office(s).

2. The following designated Offices have waived the requirement for such a communication at this time:
AL, AM, AP, AT, AZ, BA, BB, BG, BY, CH, CU, CZ, DE, DK, EA, EE, ES, FI, GB, GE, GH, HU, ID, IS, KE, KG, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NZ, OA, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, UZ, VN, YU, ZW
The communication will be made to those Offices only upon their request. Furthermore, those Offices do not require the applicant to furnish a copy of the international application (Rule 49.1(a-bis)).

3. Enclosed with this Notice is a copy of the international application as published by the International Bureau on 16 July 1998 (16.07.98) under No. WO 98/30941

REMINDER REGARDING CHAPTER II (Article 31(2)(a) and Rule 54.2)

If the applicant wishes to postpone entry into the national phase until 30 months (or later in some Offices) from the priority date, a demand for international preliminary examination must be filed with the competent International Preliminary Examining Authority before the expiration of 19 months from the priority date.

It is the applicant's sole responsibility to monitor the 19-month time limit.

Note that only an applicant who is a national or resident of a PCT Contracting State which is bound by Chapter II has the right to file a demand for international preliminary examination.

REMINDER REGARDING ENTRY INTO THE NATIONAL PHASE (Article 22 or 39(1))

If the applicant wishes to proceed with the international application in the national phase, he must, within 20 months or 30 months, or later in some Offices, perform the acts referred to therein before each designated or elected Office.

For further important information on the time limits and acts to be performed for entering the national phase, see the Annex to Form PCT/IB/301 (Notification of Receipt of Record Copy) and Volume II of the PCT Applicant's Guide.

<p align="center">The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland</p> <p>Facsimile No. (41-22) 740.14.35</p>	<p>Authorized officer J. Zahra</p> <p>Telephone No. (41-22) 338.83.38</p>
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Continuation of Form PCT/IB/308

**NOTICE INFORMING THE APPLICANT OF THE COMMUNICATION OF
THE INTERNATIONAL APPLICATION TO THE DESIGNATED OFFICES**

Date of mailing (day/month/year) 16 July 1998 (16.07.98)	IMPORTANT NOTICE
Applicant's or agent's file reference ME003	International application No. PCT/EP98/00162
<p>The applicant is hereby notified that, at the time of establishment of this Notice, the time limit under Rule 46.1 for making amendments under Article 19 has not yet expired and the International Bureau had received neither such amendments nor a declaration that the applicant does not wish to make amendments.</p>	

From the
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

To:

MERLONI ELETTRODOMESTICI SpA
Ufficio Brevetti e Marchi
Via Pinerolo 25
I-10060 NONE (TO)
ITALIE

PCT

WRITTEN OPINION

(PCT Rule 66)

Date of mailing
(day/month/year)

17. 09. 98

Applicant's or agent's file reference

ME003

REPLY DUE

within **3 month(s)**
from the above date of mailing

International application no.

PCT/EP98/00162

International filing date (day/month/year)

13/01/1998

Priority date (day/month/year)

13/01/1997

International Patent Classification (IPC) or both national classification and IPC

G05B19/042

Applicant

MERLONI ELETTRODOMESTICI S.P.A. et al.

1. This written opinion is the **first** drawn up by this International Preliminary Examining Authority.

2. This report contains indications relating to the following items:

- I ☒ Basis of the opinion
- II ☐ Priority
- III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☒ Certain defects in the international application
- VIII ☒ Certain observations on the international application

3. The applicant is hereby **invited to reply** to this opinion.

When? See the time limit indicated above. The applicant may, before the expiration of that time limit, request this Authority to grant an extension, see Rule 66.2(d).


How? By submitting a written reply, accompanied, where appropriate, by amendments, according to Rule 66.3. For the form and the language of the amendments, see Rules 66.8 and 66.9.

Also: For an additional opportunity to submit amendments, see Rule 66.4.
For the examiner's obligation to consider amendments and / or arguments, see Rule 66.4bis.
For an informal communication with the examiner, see Rule 66.6.

If no reply is filed, the international preliminary examination report will be established on the basis of this opinion.

4. The final date by which the international preliminary examination report must be established according to Rule 69.2 is: **13/05/1999**

Name and mailing address of the international preliminary examining authority

 European Patent Office
D-80298 Munich
Tel. (+49-89) 2399-0, Tx: 523656 epmu d
Fax: (+49-89) 2399-4465

Authorized officer / Examiner
Roberts, N

Formalities officer (incl. extension of time limits)
Muehlbauer, P
Telephone No. (+49-89) 2399-2261



I. Basis of the opinion

1. This opinion has been drawn on the basis of (*substitute sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this opinion as "originally filed".*):

Description, pages:

1-13 as originally filed

Claims, No.:

1-17 as originally filed

Drawings, sheets:

1/2-2/2 as originally filed

2. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
☐ the claims, Nos.:
☐ the drawings, sheets:

3. This opinion has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)):

4. Additional observations, if necessary:

V. Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims
Inventive step (IS)	Claims 1-17
Industrial applicability (IA)	Claims

2. Citations and explanations

see separat sheet

VII. Certain defects in the international application

The following defects in the form or contents of the international application have been noted:

see separate sheet

VIII. Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

see separate sheet

A - CONCERNING ITEM VIII

1. The claims do not meet the requirements of Article 6 (clarity) for the following reasons:
 - a) Claim 1 is directed to a "control system for a household appliance". Lines 1-2 of claim 1, however, define the features which follow as being comprised in the household appliance, not in the control system as such. It is therefore unclear which of the features of claim 1 form part of the invention claimed, and which do not. Clarification is therefore sought.
 - b) It is not clear from the first 3 lines of claim 1 that the selection means are mounted on the control panel of the appliance.
 - c) The word "codified" used throughout the claims (see, for example, claim 1, line 4) is not clear. It is suggested that this word be replaced by the word "stored" throughout the claims.
2. In an attempt to assist the applicant the following new wording for claim 1 is suggested which it is considered will address all clarity objections raised above, as well as correcting a number of additional minor unclarities. It should, however, be noted that the suggested wording does not render claim 1 inventive with respect to the prior art (see point B below). The suggested wording is therefore intended merely as a helpful basis from which the applicant can make further amendments in order to meet the further objections raised later in this written opinion.

3. Suggested Claim 1:

"Control system for a household appliance (1), said appliance (1) comprising an electronic control unit (2) and selection means (3) for the selection of predetermined basic functions of said appliance (1), said selection means (3) being located on a control panel of said appliance,

whereby, as part of said control system, a first set of information is stored in said electronic control unit (2), on the basis of selections made via said selection means (3), in order to enable said appliance (1) to perform said basic functions,

and whereby, as a further part of said control system, a second set of information is stored in said electronic control unit (2) for enabling said apparatus (1) to perform additional functions to those basic functions that can be selected via said selection means (3), the said electronic control unit (2) being prearranged for interfacing with an external, optional electronic device (5; 9; 9A) for enabling the programming or selecting of said additional functions."

4. Before adopting the suggested wording as a basis for further amendment, the applicant should satisfy himself that it does not introduce added subject-matter in contravention of Article 34(2)(b) PCT.

B - CONCERNING ITEM V

1. The following documents are referred to in this written opinion:
D1: US A 5 375 508
D2: EP A 0 298 625
2. It is noted that the features defined as "optional" in the claims [eg. claim 1 (line 10), claim 17 (line 14), claim 7, claim 8, claim 10, claim 11] are, in fact, not "hard" features of these claims. These features may therefore be ignored for the purpose of assessing inventive step.
3. D1 represents the closest prior art. Particular attention is drawn to the following parts of D1:
 - Figures 1-2
 - Figure 4.
 - Col. 1, lines 9-11
 - Col. 1, lines 38-48
 - Col. 2, lines 4-14
 - Col. 2, lines 40-49
 - Col. 3, lines 50-58
 - Col. 4, lines 25-53
 - Col. 5, line to col. 6, line 16
 - The function control list on columns 6-8
 - Col. 11, lines 31-40
4. D2 also represents very relevant prior art. Particular attention is drawn to Figure 1 and to the passage on column 9 (lines 15-39) in which it is described how a remote, hand held, infra-red programming device is used to allow special functions to be programmed/selected in a domestic appliance (television).

5. Claim 1:

- a) Comparing the suggested wording of claim 1 with the disclosure of D1 leads the following result [note: references to D1 are used with the wording of the suggested claim 1 of the present application - see in particular figures 1 and 4 of D1]:

"Control system for a household appliance (20 = coffee machine), said appliance comprising an electronic control unit (28) and selection means (switched inputs to unit 106) for the selection of predetermined basic functions of said appliance, said selection means being located on a control panel of said appliance (normal practice),

whereby, as part of said control system, a first set of information is stored in said electronic control unit (110 and see passage on column 11, lines 31-39), on the basis of selections made via said selection means, in order to enable said appliance to perform said basic functions,

and whereby, as a further part of said control system, a second set of information is stored in said electronic control unit (112 and see passage on column 11, lines 31-39) for enabling said apparatus to perform additional functions to those basic functions that can be selected via said selection means, the said electronic control unit being prearranged for interfacing (72, 74) with an external, optional electronic device (30) for enabling the programming or selecting of said additional functions."

- b) From this comparison it may be seen that the only difference between claim 1 and the disclosure of D1 is that claim 1 specifies that the selection means are "located on a control panel of said appliance". This is, however, normal practice in the art. It is therefore concluded that claim 1 does not meet the requirements of Article 33(3) PCT (inventive step).

6. Independent Claim 17:

The arguments addressed to claim 1 (above) also apply to equivalent claim 17. This claim therefore fails to meet the requirements of Article 33(3) PCT (inventive step).

7. Claim 2:

The feature of claim 2 is also disclosed in D1 (reference signs 110 and 112 of figure 4 and the passage on column 11, lines 31-39). This claim therefore fails to meet the requirements of Article 33(3) PCT (inventive step).

8. Claims 3 and 4:

The features of claims 3 and 4 are also disclosed in D1 (reference signs 72 and 74 in figure 4). Furthermore, it is normal practice, when connecting two items of data processing equipment together, to use an interfacing unit to interface one to the other. These claims therefore fail to meet the requirements of Article 33(3) PCT (inventive step).

9. Claim 5:

The feature of claim 5 is also disclosed in D1 (reference signs 108 in figure 4). This claim therefore fails to meet the requirements of Article 33(3) PCT (inventive step).

10. Claims 7, 8 and 9:

The features of claims 7 and 9 are also disclosed in D1 (column 5, lines 40-50 and reference sign 75 in figure 1). These claims therefore fail to meet the requirements of Article 33(3) PCT (inventive step).

11. Claim 10:

The feature of claim 10 is a standard feature of video recorders with infra-red remote controls which were available before the priority date of the present

application. The Examiner has such a device (manufactured by JVC) at home. This claim therefore fails to meet the requirements of Article 33(3) PCT (inventive step).

12. Claims 11 and 12:

The features of claims 11 and 12 are disclosed in D1 (reference signs 75 and 76 in figure 1). These claims therefore fail to meet the requirements of Article 33(3) PCT (inventive step).

13. Claim 13:

The feature of claim 13 is also disclosed in D2 (Figure 1, item 20). This claim therefore fails to meet the requirements of Article 33(3) PCT (inventive step).

14. Claims 14 and 16:

The feature of claims 14 and 16 are also disclosed in D1 (table of control functions on columns 6-8). These claims therefore fail to meet the requirements of Article 33(3) PCT (inventive step).

15. Claims 6 and 15:

Claims 6 and 15 do not appear to introduce subject-matter which could form the basis of an inventive independent claim because they define features which either constitute part of the common general knowledge or which are derivable in an obvious way from the prior art. These claims therefore fail to meet the requirements of Article 33(3) PCT (inventive step).

C - CONCERNING ITEM VII

1. All the comments made in this written opinion which are addressed to the subject-matter of independent claim 1 are also to be interpreted as applying *mutatis mutandis* to the subject-matter of corresponding independent claim 17. Therefore amendments corresponding to all the amendments made to claim 1 should also be made to the subject-matter of claim 17. In particular, the suggested version of claim 1 should be used as a basis for the redrafting of claim 17.
2. D1 and D2 should be identified in the description and the relevant material disclosed therein should be briefly discussed. This is necessary in order to set out more fully the background art useful for understanding the invention, as required by Rule 5.1(a)(ii) PCT
3. To meet the requirements of Rule 6.3(b) PCT independent claims 1 and 17 should be properly cast in the two part form, with those features which in combination are part of the prior art (as contained in D1) being placed in the pre-characterising part.
4. To meet the requirements of Rule 5.1(a)(iii) PCT the description, particularly the summary of invention in the introductory portion, should be amended in order to bring it into conformity with any new claims filed.
5. The dependent claims should be amended to take into account amendments made to the main claims. In particular terminology should be used consistently throughout the claims.
6. The attention of the applicant is drawn to the fact that during re-editing no part of the application may be amended in such a way that it contains subject-matter which extends beyond the content of the application as filed, Article 34(2)(b) PCT.



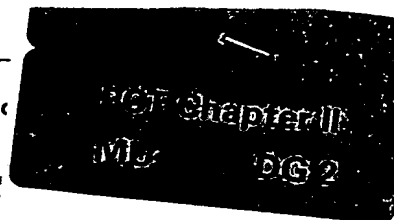
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☎ (089) 2399-0
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FAX (089) 2399-4465

Europäisches
Patentamt

Generaldirektion 2

European
Patent Office

Directorate General



Correspondence with the EPO on PCT Chapter II demands

In order to ensure that your PCT Chapter II demand is dealt with as promptly as possible you are requested to use the enclosed self-adhesive labels with any correspondence relating to the demand sent to the Munich Office.

One of these labels should be affixed to a prominent place in the upper part of the letter or form etc. which you are filing.

PATENT COOPERATION TREATY

From the
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

PCT

NOTIFICATION OF TRANSMITTAL OF THE INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Rule 71.1)

To:

MERLONI ELETTRODOMESTICI SpA
Ufficio Brevetti e Marchi
Via Pinerolo 25
I-10060 NONE (TO)
ITALIE

Date of mailing
(day/month/year)

26. 04. 99

Applicant's or agent's file reference
ME003

IMPORTANT NOTIFICATION

International application No.
PCT/EP98/00162

International filing date (day/month/year)
13/01/1998

Priority date (day/month/year)
13/01/1997

Applicant

MERLONI ELETTRODOMESTICI S.P.A. et al.

1. The applicant is hereby notified that this International Preliminary Examining Authority transmits herewith the international preliminary examination report and its annexes, if any, established on the international application.
2. A copy of the report and its annexes, if any, is being transmitted to the International Bureau for communication to all the elected Offices.
3. Where required by any of the elected Offices, the International Bureau will prepare an English translation of the report (but not of any annexes) and will transmit such translation to those Offices.


4. REMINDER

The applicant must enter the national phase before each elected Office by performing certain acts (filing translations and paying national fees) within 30 months from the priority date (or later in some Offices) (Article 39(1)) (see also the reminder sent by the International Bureau with Form PCT/IB/301).

Where a translation of the international application must be furnished to an elected Office, that translation must contain a translation of any annexes to the international preliminary examination report. It is the applicant's responsibility to prepare and furnish such translation directly to each elected Office concerned.

For further details on the applicable time limits and requirements of the elected Offices, see Volume II of the PCT Applicant's Guide.

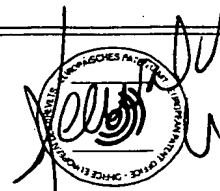
Name and mailing address of the IPEA/

 European Patent Office
D-80298 Munich
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Fax: (+49-89) 2399-4465

Authorized officer

Seewald, P

Tel. (+49-89) 2399-8245




PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference ME003	FOR FURTHER ACTION		See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)
International application No. PCT/EP98/00162	International filing date (<i>day/month/year</i>) 13/01/1998	Priority date (<i>day/month/year</i>) 13/01/1997	
International Patent Classification (IPC) or national classification and IPC G05B19/042			
Applicant MERLONI ELETTRODOMESTICI S.P.A. et al.			
<p>1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of 6 sheets, including this cover sheet.</p> <p><input checked="" type="checkbox"/> This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).</p> <p>These annexes consist of a total of 3 sheets.</p>			
<p>3. This report contains indications relating to the following items:</p> <ul style="list-style-type: none"> I. <input checked="" type="checkbox"/> Basis of the report II. <input type="checkbox"/> Priority III. <input type="checkbox"/> Non-establishment of opinion with regard to novelty, inventive step and industrial applicability IV. <input type="checkbox"/> Lack of unity of invention V. <input checked="" type="checkbox"/> Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement VI. <input type="checkbox"/> Certain documents cited VII. <input checked="" type="checkbox"/> Certain defects in the international application VIII. <input checked="" type="checkbox"/> Certain observations on the international application 			
Date of submission of the demand 31/07/1998		Date of completion of this report 26. 04. 99	
Name and mailing address of the international preliminary examining authority:  European Patent Office D-80298 Munich Tel. (+49-89) 2399-0 Tx: 523656 epmu d Fax: (+49-89) 2399-4465		Authorized officer Roberts, N Telephone No. (+49-89) 2399 2742	



INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/EP98/00162

I. Basis of the report

1. This report has been drawn on the basis of (*substitute sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to the report since they do not contain amendments.*):

Description, pages:

1-13 as originally filed

Claims, No.:

1-17 as received on 01/03/1999 with letter of 16/02/1999

Drawings, sheets:

1/2,2/2 as originally filed

2. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
- ☐ the claims, Nos.:
- ☐ the drawings, sheets:

3. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)):

4. Additional observations, if necessary:

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/EP98/00162

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims 1-17
	No: Claims
Inventive step (IS)	Yes: Claims 1-17
	No: Claims
Industrial applicability (IA)	Yes: Claims 1-17
	No: Claims

2. Citations and explanations

see separate sheet

VII. Certain defects in the international application

The following defects in the form or contents of the international application have been noted:

see separate sheet

VIII. Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

see separate sheet

A - CONCERNING ITEM V

1. The invention concerns a control system (independent claim 1) and a corresponding method of programming (independent claim 17) for household appliances.
2. The closest prior art is represented by document US A 5 375 508 (D1), which concerns a digital brewer controller.
3. Claims 1 and 17 of this application are differentiated from D1 in that the selection and performing of additional (not basic) functions is enable by means of an external interface. This allows the functionality of a basic (standard) household appliance to be extended without increasing the complexity of the control panel mounted on the appliance. On the basis of the prior art it is not considered to be obvious to achieve this effect with this particular combination of features. Therefore claims 1 and 17 are considered to meet the requirements of Article 33(3) PCT [Inventive Step].
4. Claims 2 to 16, by virtue of their dependence on claim 1, are also considered to meet the requirements of Article 33(3) PCT [Inventive Step].
5. All the claims of this application are considered to meet the requirements of Article 33(2) PCT [Novelty] and of Article 33(4) PCT [Industrial Applicability].

B - CONCERNING ITEM VIII

The use of the term "programs" (in claims 1 and 17) to replace the originally filed term "functions" is not clear (Article 6 PCT). The lack of clarity arises because the most obvious interpretation of the word "programs", in the context used, is that of "computer programs". There is, however, no support for such an interpretation in the description of the application as originally filed. Should the applicants decide to enter into the national/regional phase, in particular before the European Patent Office, it is suggested that the term "programs" be replaced by the original term "functions" in both claims 1 and 17.

C - CONCERNING ITEM VII

1. This report concludes the international procedure. Therefore the observations made therein are intended to assist the Applicants if they should decide to subsequently enter into the national/regional phase. Therefore it is not appropriate to make a response concerning these observations to the International Preliminary Examining Authority.
2. Should the Applicants decide to enter into the national/regional phase, in particular before the European Patent Office, the following matters would have to be addressed:
 - a) The clarity objection raised under point B above would have to be addressed.
 - b) The last 5 words of claim 12 would appear to add subject-matter which extends beyond the content of the application as filed, Article 34(2)(b) PCT. This added subject-matter would have to be removed.

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT - SEPARATE SHEET**

International application No. PCT/EP98/00162

- c) D1 would have to be identified in the description and the relevant material disclosed therein briefly discussed.
- d) The description, particularly the summary of invention in the introductory portion, would have to be amended in order to bring it into conformity with the new claims 1 and 17.

CLAIMS

1. Control system for a household appliance, said household appliance (1) comprising an electronic control unit (2) and selection means (3), located in particular on a control panel, for the selection of predetermined basic functions of the appliance (1), where in said electronic unit (2) first information are codified for
5 said apparatus (1) to perform said basic functions, in function of the selection made through said selection means (3), characterized in that in said electronic unit (2) second information are codified, which allow the apparatus (1) to perform additional functions in respect to the ones that can be selected through said selection means (3), and that said electronic unit (2) is prearranged for its interfacing with an
10 external and optional electronic device (5; 9; 9A) being provided to enable and select the execution of said additional functions.

2. Control system, according to claim 1, characterized in that said electronic unit (2) comprises memory means (M), where in a first area (N) of said memory means (M) said first information are codified and in a second area (A) of said
15 memory means (M) information are codified, used by the control system to interpret and/or convert into actions data from said external and optional electronic device (5; 9; 9A).

3. Control system, according to claim 1, characterized in that interfacing means (4; 4A) are provided for allowing the connection between said electronic unit
20 (2) and said optional electronic device (5; 9; 9A).

4. Control system, according to claim 3, characterized in that said interfacing means comprise an optional interfacing module (4; 4A), to be associated with said electronic unit (2).

5. Control system, according to at least one of the previous claims,
25 characterized in that said electronic unit (2) comprises a microcontroller having a communication line to external devices.

6. Control system, according to at least one of the previous claims.

characterized in that said electronic unit (2) is provided to transmit information relating to the operating status of the household appliance (1).

7. Control system, according to the previous claim, characterized in that said optional device (5; 9; 9A) is provided for receiving said information relating to the
5 operating status of the household appliance (1).

8. Control system, according to at least one of the previous claims, characterized in that said optional device (5; 9; 9A) comprises a display device.

9. Control system, according to claims 7 and 8, characterized in that said optional device is provided for displaying on said display device said information
10 relating to the operating status of the household appliance (1).

10. Control system, according to at least one of the previous claims, characterized in that said household appliance (1) comprises a clock, that said optional device (5; 9; 9A) comprises a battery and a relevant clock, and that said optional device (5; 9; 9A) is provided for updating the clock of the household
15 appliance (1).

11. Control system, according to at least one of the previous claims, characterized in that said optional device (5; 9; 9A) is a Personal Computer (5).

12. Control system, according to the previous claim, characterized in that said Personal Computer (5) is connected with said household appliance (19) through
20 a data bus, in particular by conveyed waves.

13. Control system, according to at least one of claims 1 to 9, characterized in that said optional device (5; 9; 9A) is a remote control (9; 9A), in particular of the infrared or radio-frequency type, and that said interfacing means comprise a signal receiver (4A) from said remote control.

25 14. Control system, according to at least one of the previous claims, characterized in that a management program is provided, supplied on a suitable support (6), for said optional device (5; 9; 9A), for an easy setting of said additional functions through said optional device (5; 9; 9A).

15. Control system, according to the previous claim, characterized in that said management program provides control routines for avoiding the wrong or improper programming of the household appliance (1).

5 16. Control system, according to the previous claim, characterized in that said management program comprises utilities functions for the use of the household appliance (1), such as a cook-book for the use of an oven or a database for the food preserved in a refrigerator.

10 17. Method for programming an electronically controlled household appliance (1), of the type able to perform basic functions and sophisticated additional functions, where said basic functions can be programmed by standard control means (3) comprised in said household appliance (1), characterized in that the programming of the sophisticated additional functions, that for their nature tend to increase the managing complexity of the household appliance (1) for the user, is simplified by the use of an optional and dedicated external electronic device (5; 9; 15 9A).

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EUROPEAN PATENT OFFICE
Directorate General 2
D - 80298 Munich
GERMANY

URGENT MATTER PCT CHAPTER II MI DG2

None (TO), Italy, February 16, 1999

RE: International Patent Application PCT/EP98/000162
Merloni Elettrodomestici S.p.A. et al.
Our ref.: ME003
Response to first written opinion under Rule 66 PCT

Dear Sirs,

We refer to the first written opinion issued on 15.09.1998 in connection with the application in reference.

Please find enclosed a new set of claims and some consideration thereof, in order to possibly overcome the outstanding Examiner's objections and for better explaining the difference between the invention and the available prior art.

We regret we cannot share the Examiner's interpretation of D1.

In D1 the electronic device 30 is provided for modifying operating parameters of the basic function or programs of the appliance; the device 30 of D1 is not provided for enabling the user to perform programs being additional with respect to the basic ones. In D1, the device 30 allows to modify in a permanent way (at least until a new up-dating), the basic programs.

 **Scholtes**

 **ARISTON**

 **Indesit**

In other words in D1, by modifying certain parameters, the programs which were related to the "old parameters" disappear from the appliance, and are substituted by new programs, being characterized by the amended parameters. Assume that the appliance of D1 has ten programs; if the operating parameters of five of them are changed, we still have ten programs.

The gist of the present invention, which is deemed to be clearly explained throughout the application papers, is that of providing an appliance which can basically performs a given number of standard programs, which are always the same. By interfacing the appliance with an external and optional device, the same appliance, without requiring any particular programming or set-up, is able to perform further or additional programs with respect to the basic ones; said additional programs are however already present in the control system, even before the interfacing of the external device.

According to the invention, the basic programs remain permanently in the control circuit of the appliance and can still be selected via the usual selection means, even if additional programs can be selected through the addition of the external device.

The external device is the necessary "key" which allows the average user to select the additional programs, which otherwise would remain in a "secret archive" of the control system.

In usual household appliances, it is not conceivable to allow the user to modify the structure of the basic programs (intended as washing program, cooking programs, refrigerating cycle, etc.). The user, even if a very experienced one, is not allowed to completely change said programs of the appliance, since this would imply the risk of erroneous settings of the appliance; only very limited possibility are allowed for the user, such as the change of a temperature, of a spin speed, etc. But the structure of the basic programs still remains the same (this programs of "white" household appliances usually contain certain limit parameters that, even in the case of a misappropriated setting by the user, allow to "limit the damages").

As mentioned, D1 is instead designed for allowing to change the operating parameters of brewing machines, for the case in which different needs have to be satisfied (see col. 1, lines 29-45); this is a specific need for restaurants, caterers or other food industries (see col. 1, lines 29-32).

Indeed, D1 wants to remove from the appliance body the settings control devices (see col. 1, lines 44-48 and col. 2, lines 40-45). More specifically, D1 needs to separate the adjustment function from the general operating functions.

For this reasons, the input device 30 of D1 is removed after the initial set-up or changing thereof are made (see col. 6, lines 14-16). In the invention in reference, the additional electronic device, once installed, "flanks" the usual selection means 3, for allowing the user to perform, besides the conventional programs, also the new programs, which are really "additional" ones.

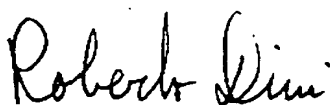
If an egg has to be cooked, the relevant simple cooking program will be selected through the selection means 3; if a stuffed turkey has to be cooked, by using steam and infrared rays, then a sophisticated cooking program will be selectable, but only through the additional device 5; 9 or 9A, this sophisticated program pertaining to the "second set of information" stored in the electronic control unit.

As to D2, it has to be pointed out that the gist of this document is exactly the same as D1; the "special function" which the Examiner's refers to, on page 9, lines 15-39, are the "servicing mode" of the TV set, i.e. the rewriting of the standardized values of the operating parameters of the device (i.e. contrast, hue and balance of the image). Again, the remote control is used to allow someone (the user ?) to intervene on the operating parameters of the appliances.

New claim 1 has been drafted starting by the Examiner's proposal contained in the above cited Opinion; the same apply for independent method claim 17; their contents are deemed to be fully supported by the original disclosures. Minor wording amendments have been introduced in the dependent claims, for reasons of consistency with the newly filed claim 1.

In the case that the enclosed amended claims would still be judged as not complying with the PCT provisions, we respectfully ask the Examiner to issue a second written opinion before establishing the final international preliminary examination report. In this instance, we should be pleased to receive the Examiner's suggestion for the drafting of acceptable claims and to this purpose we remain at disposal for any eventual telephone consultations.

Respectfully submitted,



Roberto Dini
In charge of Patents
Merloni Elettrodomestici S.p.A.

encl: set of amended claims in triplicate

CLAIMS

1. Control system for an appliance which processes household items such as food, laundry, crockery and the like, said household appliance (1) comprising an electronic control unit (2) and selection means (3), located in particular on a control panel of the appliance cabinet, for the selection of predetermined basic programs of said appliance (1), whereby, as part of said control system, a first set of information is stored in said electronic control unit (2) which are used by said electronic control unit (2), in function of selections made through said selection means (3), for controlling the performance of said basic programs, characterized in that, as a further part of said control system, a second set of information is stored in said electronic control unit (2), for enabling said apparatus to perform additional programs to those basic programs which can be selected via said selection means (3), said electronic control unit (2) being prearranged for interfacing with an external electronic device (5; 9; 9A) which enables the selection and the performance of said additional programs.

2. Control system, according to claim 1, characterized in that said electronic unit (2) comprises memory means (M), where in a first area (N) of said memory means (M) said first set of information are stored and where in a second area (A) of said memory means (M) said second set of information are stored, used by the control system to interpret and/or convert into actions data from said external electronic device (5; 9; 9A).

3. Control system, according to claim 1, characterized in that interfacing means (4; 4A) are provided for allowing the connection between said electronic unit (2) and said external electronic device (5; 9; 9A).

4. Control system, according to claim 3, characterized in that said interfacing means comprise an interfacing module (4; 4A), to be associated with said electronic unit (2).

5. Control system, according to at least one of the previous claims,

characterized in that said electronic unit (2) comprises a microcontroller having a communication line to external devices.

5 6. Control system, according to at least one of the previous claims, characterized in that said electronic unit (2) is provided to transmit information relating to the operating status of the household appliance (1).

7. Control system, according to the previous claim, characterized in that said external device (5; 9; 9A) is provided for receiving said information relating to the operating status of the household appliance (1).

10 8. Control system, according to at least one of the previous claims, characterized in that said external device (5; 9; 9A) comprises a display device.

9. Control system, according to claims 7 and 8, characterized in that said external device is provided for displaying on said display device said information relating to the operating status of the household appliance (1).

15 10. Control system, according to at least one of the previous claims, characterized in that said household appliance (1) comprises a clock, that said external device (5; 9; 9A) comprises a battery and a relevant clock, and that said external device (5; 9; 9A) is provided for updating the clock of the household appliance (1).

20 11. Control system, according to at least one of the previous claims, characterized in that said external device (5; 9; 9A) is a Personal Computer (5).

12. Control system, according to the previous claim, characterized in that said Personal Computer (5) is connected with said household appliance (19) through a data bus, in particular a power line carrier system.

25 13. Control system, according to at least one of claims 1 to 9, characterized in that said external device (5; 9; 9A) is a remote control (9; 9A), in particular of the infrared or radio-frequency type, and that said interfacing means comprise a signal receiver (4A) from said remote control.

14. Control system, according to at least one of the previous claims,

characterized in that a management program is provided, supplied on a suitable support (6), for said external device (5; 9; 9A), for an easy setting of said additional functions through said optional device (5; 9; 9A).

5 15. Control system, according to the previous claim, characterized in that said management program provides control routines for avoiding the wrong or improper programming of the household appliance (1).

10 16. Control system, according to the previous claim, characterized in that said management program comprises utilities functions for the use of the household appliance (1), such as a cook-book for the use of an oven or a database for the food preserved in a refrigerator.

15 17. Method for programming an electronically controlled appliance (1) for processing household items such as food, laundry, crockery and the like, said appliance (1) being able to perform basic functions and additional functions, where said basic functions can be selected by standard control means (3) comprised in said household appliance (1), a first set of information being stored in an electronic control unit (2), which are used by said electronic control unit (2), in function of selections made through standard control means (3), for controlling the performance of said basic programs, and whereby a second set of information is stored in said electronic control unit (2), for enabling said apparatus to perform additional
20 programs to those basic programs which can be selected via said selection means (3) characterized in that the selection of the additional programs is simplified by the use of an external electronic device (5; 9; 9A), to be interfaced with said electronic control unit (2), the selection of said additional program being possible only through the use of said external electronic device (5; 9; 9A).

REC'D 28 APR 1999

WIPO PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference ME003	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/EP98/00162	International filing date (day/month/year) 13/01/1998	Priority date (day/month/year) 13/01/1997
International Patent Classification (IPC) or national classification and IPC G05B19/042		
Applicant MERLONI ELETTRODOMESTICI S.P.A. et al.		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.



2. This REPORT consists of a total of 6 sheets, including this cover sheet.

- ☒ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of 3 sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☒ Certain defects in the international application
- VIII ☒ Certain observations on the international application

Date of submission of the demand 31/07/1998	Date of completion of this report 26. 04. 99
Name and mailing address of the international preliminary examining authority:  European Patent Office D-80298 Munich Tel. (+49-89) 2399-0 Tx: 523656 epmu d Fax: (+49-89) 2399-4465	Authorized officer Roberts, N Telephone No. (+49-89) 2399 2742 

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/EP98/00162

I. Basis of the report

1. This report has been drawn on the basis of (*substitute sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to the report since they do not contain amendments.*):

Description, pages:

1-13 as originally filed

Claims, No.:

1-17 as received on 01/03/1999 with letter of 16/02/1999

Drawings, sheets:

1/2,2/2 as originally filed

2. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
- ☐ the claims, Nos.:
- ☐ the drawings, sheets:

3. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)):

4. Additional observations, if necessary:

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/EP98/00162

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes:	Claims 1-17
	No:	Claims
Inventive step (IS)	Yes:	Claims 1-17
	No:	Claims
Industrial applicability (IA)	Yes:	Claims 1-17
	No:	Claims

2. Citations and explanations

see separate sheet

VII. Certain defects in the international application

The following defects in the form or contents of the international application have been noted:

see separate sheet

VIII. Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

see separate sheet

A - CONCERNING ITEM V

1. The invention concerns a control system (independent claim 1) and a corresponding method of programming (independent claim 17) for household appliances.
2. The closest prior art is represented by document US A 5 375 508 (D1), which concerns a digital brewer controller.
3. Claims 1 and 17 of this application are differentiated from D1 in that the selection and performing of additional (not basic) functions is enable by means of an external interface. This allows the functionality of a basic (standard) household appliance to be extended without increasing the complexity of the control panel mounted on the appliance. On the basis of the prior art it is not considered to be obvious to achieve this effect with this particular combination of features. Therefore claims 1 and 17 are considered to meet the requirements of Article 33(3) PCT [Inventive Step].
4. Claims 2 to 16, by virtue of their dependence on claim 1, are also considered to meet the requirements of Article 33(3) PCT [Inventive Step].
5. All the claims of this application are considered to meet the requirements of Article 33(2) PCT [Novelty] and of Article 33(4) PCT [Industrial Applicability].

B - CONCERNING ITEM VIII

The use of the term "programs" (in claims 1 and 17) to replace the originally filed term "functions" is not clear (Article 6 PCT). The lack of clarity arises because the most obvious interpretation of the word "programs", in the context used, is that of "computer programs". There is, however, no support for such an interpretation in the description of the application as originally filed. Should the applicants decide to enter into the national/regional phase, in particular before the European Patent Office, it is suggested that the term "programs" be replaced by the original term "functions" in both claims 1 and 17.

C - CONCERNING ITEM VII

1. This report concludes the international procedure. Therefore the observations made therein are intended to assist the Applicants if they should decide to subsequently enter into the national/regional phase. Therefore it is not appropriate to make a response concerning these observations to the International Preliminary Examining Authority.
2. Should the Applicants decide to enter into the national/regional phase, in particular before the European Patent Office, the following matters would have to be addressed:
 - a) The clarity objection raised under point B above would have to be addressed.
 - b) The last 5 words of claim 12 would appear to add subject-matter which extends beyond the content of the application as filed, Article 34(2)(b) PCT. This added subject-matter would have to be removed.

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT - SEPARATE SHEET**

International application No. PCT/EP98/00162

- c) D1 would have to be identified in the description and the relevant material disclosed therein briefly discussed.
- d) The description, particularly the summary of invention in the introductory portion, would have to be amended in order to bring it into conformity with the new claims 1 and 17.

CLAIMS

1. Control system for an appliance which processes household items such as food, laundry, crockery and the like, said household appliance (1) comprising an electronic control unit (2) and selection means (3), located in particular on a control panel of the appliance cabinet, for the selection of predetermined basic programs of said appliance (1), whereby, as part of said control system, a first set of information is stored in said electronic control unit (2) which are used by said electronic control unit (2), in function of selections made through said selection means (3), for controlling the performance of said basic programs, characterized in that, as a further part of said control system, a second set of information is stored in said electronic control unit (2), for enabling said apparatus to perform additional programs to those basic programs which can be selected via said selection means (3), said electronic control unit (2) being prearranged for interfacing with an external electronic device (5; 9; 9A) which enables the selection and the performance of said additional programs.

2. Control system, according to claim 1, characterized in that said electronic unit (2) comprises memory means (M), where in a first area (N) of said memory means (M) said first set of information are stored and where in a second area (A) of said memory means (M) said second set of information are stored, used by the control system to interpret and/or convert into actions data from said external electronic device (5; 9; 9A).

3. Control system, according to claim 1, characterized in that interfacing means (4; 4A) are provided for allowing the connection between said electronic unit (2) and said external electronic device (5; 9; 9A).

4. Control system, according to claim 3, characterized in that said interfacing means comprise an interfacing module (4; 4A), to be associated with said electronic unit (2).

5. Control system, according to at least one of the previous claims,

characterized in that said electronic unit (2) comprises a microcontroller having a communication line to external devices.

6. Control system, according to at least one of the previous claims, characterized in that said electronic unit (2) is provided to transmit information
5 relating to the operating status of the household appliance (1).

7. Control system, according to the previous claim, characterized in that said external device (5; 9; 9A) is provided for receiving said information relating to the operating status of the household appliance (1).

8. Control system, according to at least one of the previous claims,
10 characterized in that said external device (5; 9; 9A) comprises a display device.

9. Control system, according to claims 7 and 8, characterized in that said external device is provided for displaying on said display device said information relating to the operating status of the household appliance (1).

10. Control system, according to at least one of the previous claims,
15 characterized in that said household appliance (1) comprises a clock, that said external device (5; 9; 9A) comprises a battery and a relevant clock, and that said external device (5; 9; 9A) is provided for updating the clock of the household appliance (1).

11. Control system, according to at least one of the previous claims,
20 characterized in that said external device (5; 9; 9A) is a Personal Computer (5).

12. Control system, according to the previous claim, characterized in that said Personal Computer (5) is connected with said household appliance (19) through a data bus, in particular a power line carrier system.

13. Control system, according to at least one of claims 1 to 9, characterized
25 in that said external device (5; 9; 9A) is a remote control (9; 9A), in particular of the infrared or radio-frequency type, and that said interfacing means comprise a signal receiver (4A) from said remote control.

14. Control system, according to at least one of the previous claims,

characterized in that a management program is provided, supplied on a suitable support (6), for said external device (5; 9; 9A), for an easy setting of said additional functions through said optional device (5; 9; 9A).

5 15. Control system, according to the previous claim, characterized in that said management program provides control routines for avoiding the wrong or improper programming of the household appliance (1).

10 16. Control system, according to the previous claim, characterized in that said management program comprises utilities functions for the use of the household appliance (1), such as a cook-book for the use of an oven or a database for the food preserved in a refrigerator.

15 17. Method for programming an electronically controlled appliance (1) for processing household items such as food, laundry, crockery and the like, said appliance (1) being able to perform basic functions and additional functions, where said basic functions can be selected by standard control means (3) comprised in said household appliance (1), a first set of information being stored in an electronic control unit (2), which are used by said electronic control unit (2), in function of selections made through standard control means (3), for controlling the performance of said basic programs, and whereby a second set of information is stored in said electronic control unit (2), for enabling said apparatus to perform additional
20 programs to those basic programs which can be selected via said selection means (3) characterized in that the selection of the additional programs is simplified by the use of an external electronic device (5; 9; 9A), to be interfaced with said electronic control unit (2), the selection of said additional program being possible only through the use of said external electronic device (5; 9; 9A).

INTERNATIONAL COOPERATION TREATY



INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference ME003	FOR FURTHER ACTION see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.	
International application No. PCT/EP 98/ 00162	International filing date (day/month/year) 13/01/1998	(Earliest) Priority Date (day/month/year) 13/01/1997
Applicant MERLONI ELETTRODOMESTICI S.P.A. et al.		

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 3 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

1. ☐ **Certain claims were found unsearchable** (see Box I).
2. ☐ **Unity of invention is lacking** (see Box II).
3. ☐ The international application contains disclosure of a **nucleotide and/or amino acid sequence listing** and the international search was carried out on the basis of the sequence listing
 - ☐ filed with the international application.
 - ☐ furnished by the applicant separately from the international application.
 - ☐ but not accompanied by a statement to the effect that it did not include matter going beyond the disclosure in the international application as filed.
 - ☐ Transcribed by this Authority
4. With regard to the **title**, ☒ the text is approved as submitted by the applicant
 - ☐ the text has been established by this Authority to read as follows:
5. With regard to the **abstract**,
 - ☒ the text is approved as submitted by the applicant
 - ☐ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this International Search Report, submit comments to this Authority.
6. The figure of the **drawings** to be published with the abstract is:
 - Figure No. 2 ☐ as suggested by the applicant. ☐ None of the figures.
 - ☒ because the applicant failed to suggest a figure.
 - ☐ because this figure better characterizes the invention.

INTERNATIONAL SEARCH REPORT

International Application No

PCT/EP 98/00162

A. CLASSIFICATION OF SUBJECT MATTER
IPC 6 G05B19/042

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 6 G05B

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5 375 508 A (KNEPLER JOHN T ET AL) 27 December 1994 see the whole document	1-5, 8, 11, 12, 17
Y	---	6, 7, 9, 10, 13-16
Y	US 5 299 113 A (ENGLAND BRENT A ET AL) 29 March 1994 see the whole document	6, 7, 9, 13
Y	US 4 636 949 A (LONGABAUGH CHARLES R) 13 January 1987 see the whole document	10
A	---	1, 17
Y	EP 0 482 578 A (SHARP KK) 29 April 1992 see the whole document	14-16
A	---	1, 17
	--- -/-	

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

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Date of the actual completion of the international search

19 May 1998

Date of mailing of the international search report

26/05/1998

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Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
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A	DE 40 39 465 A (KLAUMUENZNER GILBERT) 17 June 1992 see the whole document -----	1-12, 17

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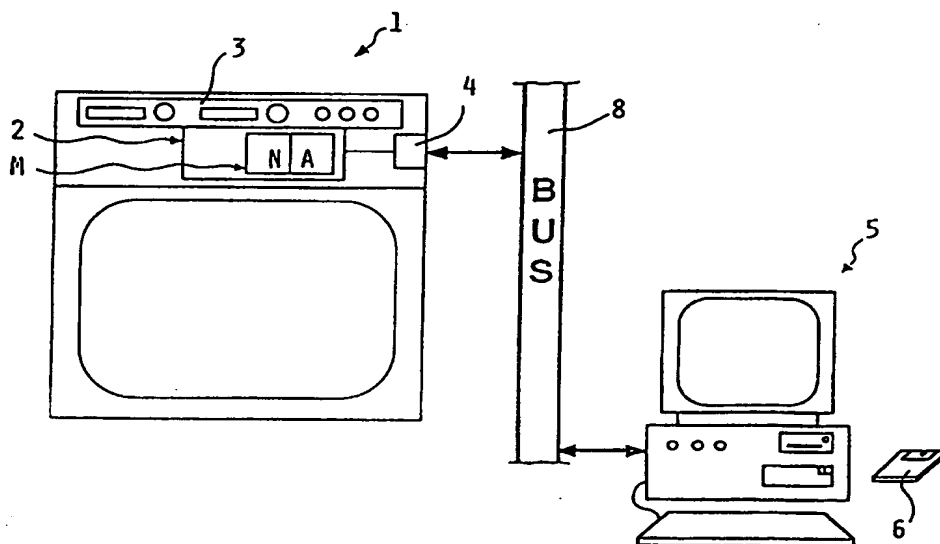
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INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification ⁶ : G05B 19/042	A1	(11) International Publication Number: WO 98/30941 (43) International Publication Date: 16 July 1998 (16.07.98)
(21) International Application Number: PCT/EP98/00162 (22) International Filing Date: 13 January 1998 (13.01.98) (30) Priority Data: TO97A000017 13 January 1997 (13.01.97) IT (71) Applicant (for all designated States except US): MERLONI ELETTRODOMESTICI S.P.A. [IT/IT]; Viale Aristide Merloni, 47, I-60044 Fabriano (IT). (72) Inventor; and (75) Inventor/Applicant (for US only): AISA, Valerio [IT/IT]; Via Serraloggia, 78/A, I-60044 Fabriano (IT).		(81) Designated States: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG). Published <i>With international search report. Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.</i>

(54) Title: CONTROL SYSTEM FOR A HOUSEHOLD APPLIANCE**(57) Abstract**

A control system for a household appliance is described, said household appliance (1) comprising an electronic control unit (2) and selection means (3), located in particular on a control panel, to select predetermined basic functions of the apparatus (1), where in said electronic unit (2) first information are codified for allowing said appliance (1) to perform said basic functions, in function of the selection made through said selection means (3). According to the invention, in said electronic unit (2) second information are codified, which allow said appliance (1) to perform additional functions with respect to the ones that can be selected through said selection means (3); moreover, said electronic unit (2) is prearranged for its interfacing with an external and optional electronic device (5; 9; 9A), which is provided for enabling and select in a simplified manner the performance of said additional functions.

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CONTROL SYSTEM FOR A HOUSEHOLD APPLIANCE

DESCRIPTION

The present invention relates to a control system for a household appliance, of the type comprising an electronic control unit and control means for the selection of predetermined basic functions of said appliance.

As known, the main resources offered by the use of electronic technologies for the control of household appliances tend to favour the development of products with an increasing number of functions, but at the same time with an ever increasing managing complexity.

For instance, the possibility of implementing several cooking procedures in one same oven gives the user a large number of possible optimal cookings: let us think, in fact, of the ovens providing for several procedures of use, such as static, ventilated, microwaves, steam, infrared cooking conditions, etc., and possible combinations of such techniques.

Therefore, if on one hand the usage opportunities of the oven are increasing, on the other hand it is apparent that to fully exploit such resources, complex sequences of times, temperatures and baking process combinations (conventional, steam, microwaves) have to be entered by the user from a keyboard.

Similar problems arise when other household appliances are used instead of a baking apparatus, such as laundry washing-machines, dishwashers, refrigerators, and it is desired to exploit at the most the resources they can offer

An attempt to simplify the usage procedures of complex household appliances requires in fact the use of proper dialogue means, such as displays and keyboards, which may make things easier for the user through a most possible interactive programming.

However, these dialogue means, being expensive on their own, also require implementation of a complex electronics capable to withstand difficult operating

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conditions, thus leading to a further cost increase.

Other known solutions provide for the assembly of sophisticated automatic programming systems, based on bar-code or magnetic card readers onboard the household apparatus, which are user-friendly, but cause the final cost of household
5 apparatus to become forbiddingly high. For this reason, multifunction household appliances usually have a really high cost, which limits their distribution and reduces their "user friendly" feature.

The present invention has the aim of providing a solution to the above problems, without increasing the cost of the household apparatus to a forbiddingly high level.

10 Said object is reached according to the present invention through a household apparatus incorporating the characteristics of the annexed claims, which form an integral part of this description.

Further objects, characteristics and advantages of the present invention will be apparent from the following detailed description and the annexed drawings, which
15 are only supplied by way of a non limiting example, wherein:

- Fig. 1 shows schematically a household appliance according to a first embodiment of the present invention.
- Fig. 2 shows schematically a household appliance according to a second embodiment of the present invention.
- 20 - Fig. 3 shows schematically a household appliance according to a third embodiment of the present invention.
- Fig. 4 shows schematically a household appliance according to a fourth embodiment of the present invention.

The basic idea of the present invention is to realize a household appliance which,
25 under usual operating conditions, is equipped with functions of conventional type, i.e. having common standard programs, however with the peculiar feature of being already preset or prearranged for the execution of additional or sophisticated functions, performances or operating programs. According to the invention, said

additional functions, performances or programs can be obtained through a data input to the household apparatus (for example by physical connection or through an infrared or radio-frequency system) from an electronic device being external and optional, capable of supplying the control system of the apparatus with the
5 necessary information for the purpose.

According to the invention, the control system of the household apparatus is at least partially electronic and comprises a microcontroller, duly programmed and having memory means, within which information for the execution of the various functions of the household appliance are codified (the fact that the control system of the
10 household appliance is of the electronic type, should not be considered as a limit to the invention, since such a characteristic is framed under the current natural evolution of control systems for household appliances, subject to an increasingly change from electromechanical to electronic technology)

Such a control system can obviously be interfaced with the above mentioned
15 external electronic device, whose purpose is to ensure an easier management of the complex usage procedures of the apparatus for the user. Therefore, the control system of the household appliance according to the invention has to be associated with a proper interfacing module, being cost-effective and simple to realize, which forms an optional accessory for the apparatus itself.

20 The control panel of the household apparatus according to the invention has anyway a conventional appearance, and therefore comprises classic knobs, push-buttons, pilot lights, and so on, to let the user have access in a simple known manner to the basic standard functions and programs of the apparatus.

As regards programming of the control system of the household appliance according
25 to the invention, a first condition consists in splitting its possible functions (or programs) in basic or standard functions (or programs) and additional functions (or programs).

Basic functions are the ones conventionally performed by a conventional middle-

class household appliance.

In the instance of a baking oven, reference can be made for example to conventional infrared cooking, with the possibility of selecting the cooking program (among those being available, which typically range from 5 to 10), the relevant temperature and
5 likely the cooking time. using the proper keys and knobs.

In the instance of a freezer, reference can be made for example to a push-button and a rapid freezing pilot lamp, a temperature setting knob and an alarm pilot light (dangerous temperature).

In the instance of a laundry washing-machine, reference can made for example to a
10 typical program selector, a temperature setting knob, a spin speed selector and push-buttons for various options (prewash, no-spin, small load, etc.).

Similarly, in the instance of a dishwasher, reference can made for example to a program selector and some push-buttons for various options (small load, crockery wetting, etc.).

15 As stated, according to the invention, the above functions and setting means are provided in the basic version of the household appliance.

On the contrary, additional functions or programs according to the invention may be as follows.

With reference to a baking oven, said additional functions may be realized by the
20 possibility of dynamically changing the heating elements configuration during the cooking process, so determining a large number of new programs being different from the basic ones, which allow to obtain proper temperature profiles associated with specific recipes; or the possibility for the special instance of ovens equipped with mixed cooking systems (for example infrared - microwaves), to best set the
25 cooking contribution associated with each one of such systems and avoid the trouble for the user of planning determined operation sequences.

With reference to a freezer, an additional function may be for instance the opportunity of managing a file for the preserved food, with advice forecast to the

user when a given food is approaching the expire date for its consumption.

With reference to a washing machine (either a laundry washer or dishwasher), additional functions may include for instance the possibility of performing washing during scheduled time periods of low-cost energy, or the possibility of performing the washing during the scheduled times of lower energy consumption, thus planning the daily energy consumption and avoiding possible blackouts due to an overflow of the value of the maximum installed power for the household environment where the apparatus is in use.

Thus, according to the invention, the control system of the apparatus, is prearranged or preset to allow the use of all its programs or functions, i.e. both the conventional or standard ones and the additional ones as provided according to the invention.

To this purpose, in a preferred embodiment of the invention, the instructions which allow the household apparatus to perform its conventional functions, through the controls normally provided in the appliance itself, are duly codified in the permanent memory means associated with the microcontroller of the control system. Moreover, within such permanent memory means, a software or data is codified which allows the control system to manage the parameters associated with the additional functions - duly controlled by an external device. Such parameters, being related to the additional functions, selected through the likely optional external device, can be stored from time to time, i.e. depending upon the selected additional function, within temporary memories (RAM or E² PROM) of the control system.

As it is clear, the basic version of the household appliance according to the invention is capable of performing the conventionally known functions associated to it, but its cost is not penalized if compared to a conventional middle-class household appliance.

In fact, the difference with respect to a known household appliance - which merely concerns the adopted control technology (electronic control in-lieu of electromechanical control) - does not involve as such an appreciable cost increase.

as it is always dealing with a cheap electronics, being related to the functional aspect only (use of notoriously low-priced microprocessors) and is free from expensive interface means for the user (displays, keyboards, etc.); on the other hand, the additional software does not practically implies any additional cost, since
5 its development cost is split over a large number of machines.

As stated, the electronic control system of the household appliance according to the invention, being based on a microcontroller, provides for the possibility of receiving from the outside, in a codified form, proper values or data concerning the operating parameters (temperature, timing, thermal gradient and active thermal-load
10 configuration values, etc.), for exploiting all its additional potentialities, as indicated for instance in the previous examples of a baking oven, a freezer, and washing-machine.

Also this pre-arrangement does not entail any significant additional costs, as it can be obtained by the simple choice of a microprocessor which is capable of
15 communicating outside. To this purpose, for instance, any microprocessor with a standard asynchronous serial line (EIA - RS232) and adequate memory area also allowing a software management of the additional functions or programs would be suitable. Microcontrollers of this kind can be easily found on the market, at low cost (typically not over 2 or 3 US Dollars).

20 Finally, as stated above, according to the invention, a proper module should be provided for interfacing the control system of the household appliance with the above external electronic device. Such an interfacing module consists of a proper adapter of a limited complexity and cost, which vary in function of the nature and complexity of the external electronic device. However, it should be highlighted that
25 also this adapter can be available as an option and is not absolutely necessary for the household appliance to perform its own basic functions in a regular manner.

An essential requirement for the external device, which sends the control information to the control system for improving and extending the functions of the

apparatus, should be easiness of use and versatility, and possibly the programmability; an ideal electronic device for performing the above function is represented for instance by a Personal Computer.

In this case, the interfacing procedures to the household appliance, can be of two
5 kinds. i.e. either direct interfacing or through a proper serial data bus.

The case of direct interfacing is shown by way of example in Fig. 1. where a household apparatus according to the invention is indicated with 1. being represented in the specific case by baking oven. Such a household apparatus 1 is equipped with an electronic control system indicated with 2. of the type having a
10 microcontroller and proper memory means. indicated with M. as previously described. In a proper area N of said memory means M. the data required for performance of the basic functions are stored. whereas in a special area A of the memory means M proper programs are stored to interpret and convert into actions the data coming from the external device.

15 A usual control panel of the household apparatus 1 is indicated with 3. for the selection and activation of its basic operating functions or programs.

The above optional interfacing module of the household appliance 1 is indicated with 4. consisting in the example of a proper serial port. connected in a known manner with the microcontroller of the control system 2

20 The external device. i.e. a Personal Computer or PC. is indicated with 5. for which a proper software is provided on a suitable magnetic or optical support 6. for the control of the additional programs or functions of the oven 1. Finally, a serial or two-pole cable is indicated with 7. for the connection of the PC 5 with the interfacing module 4 and consequently with the control system 2.

25 As it can be seen. the direct interfacing between the household apparatus and the external electronic device represented in Fig. 1 by way of example is the simplest. as well as most cost-effective solution. In fact. it will be enough to connect the PC 5 to the household apparatus 1 having the proper communicating port 4. through cable

7. To avail himself of this opportunity, the user should preferably have a portable PC for access to the household apparatus.

Interfacing through a serial data bus is represented in Fig. 2, where the same reference numbers shown in the previous figure are used.

- 5 As it is obvious, this interfacing system is by far the most suitable from a practical viewpoint, when using a PC, even if it requires the availability of a proper home bus, as indicated with number 8 in the figure, in itself known.

Such a bus 8 can be used to exchange information between a master device (in this instance the PC 5) and the various household devices (among which the household apparatus 1 according to the invention), and may use different transmission means, such as carrier data transmission system, phone cable, coaxial cable, radio-frequency, infrared rays, etc.

10 The theme related to the home bus is framed under the wider home automation thematic presently subject to keen attention, above all for the resources offered in terms of energetic consumption rationalization. In view of various solutions now available to obtain home automation with relevant data buses and communication protocols, it ensues that also the present invention can be concretized in a simple way.

15 In a most simple practical case, the data bus 8 can be of the carrier data transmission type (or power line carrier) also known as such, i.e. of the type where the exchange of information between the PC and the various household apparatus is obtained exploiting the house electric network.

As stated, the PC allowing to realize the expansion of the functions of the household apparatus according to the invention will be combined with a management program, 25 supplied on a suitable magnetic or optical support (floppy disk or CD), as indicated with 6 in Figs. 1 and 2.

Several utilities or utility programs can also be advantageously made available on such a program support 6 for the use of the household appliance.

For a refrigerator, it can be thought of a database for the preserved food, with advice forecast to the user when a given food is approaching its expire date.

For a baking oven, it can be thought of the data related to pre-established baking recipes and the possibility of permanent storage of the users' personal recipes.

5 Specifically, for a baking oven, such a PC program could have the following basic features:

- display, and likely amendment, on the PC display screen of the baking process parameters related to the various recipes:
- management of new recipes, designed by the user with the aid of the same
10 program, which is advantageously designed to guide the user interactively in writing them down and codifying them adequately:
- management of a complete cook-book on a diskette, as a typical easy-to-use database; in this case, the cook-book could be delivered on a magnetic support (floppy) or optical support (compact disk):
- 15 • simple adjustment of the recipes (i.e. quantities of ingredients, baking times, temperatures, etc.) as a function of the number of people to be served; in fact, considering that a basic recipe is usually foreseen for a fixed number of people, the cited program can be provided, upon the user's request, for modifying and storing the reference parameters being necessary, so that the baking result is
20 adjusted for a different number of persons.
- planning of weekly menus related to the various recipes, with the advantage of having automatically a weekly and/or monthly purchase list.

It is obvious, anyway, that many other functions can be performed by said additional software program, according to the development degree assigned to it: for
25 instance, a function can be provided to indicate what recipes stored on a disk can be obtained with some limited ingredients indicated by the user (let us think of an instance where at week-end or late in the day, a user was unable to do any shopping and only a few ingredients are available).

At any rate, apart from the above utilities, the availability of a Personal Computer for managing the additional complex functions of a household appliance will greatly facilitate the planning activity for the user. To this purpose, the program for obtaining the control of the household appliance through a PC shall be designed to be "user friendly", i.e. easy to be managed by the user and allowing easy programming of the additional functions of the apparatus, for instance through the use of menus for guided consultation and programming. Such a program will also favorably provide control routines to prevent the user from making a wrong or improper programming, that may lead to unsatisfactory results or performance.

- 5 A possible alternative to the PC may be for instance a remote control, through which the control system of the household appliance can receive the controls to carry out the complex functions not included in the standard ones. In this case there is obviously the advantage of an easier handling for the user.

An example of embodiment, using an infrared remote control instead of a PC as external electronic device, is illustrated in Fig. 3.

15 In this case, the interfacing module indicated with 4A and connected with the control unit of the household appliance, consists of an infrared signal receiver, with a relevant decoding software already available in the permanent memory M of the control system 2 of the apparatus.

- 20 In Fig. 3, the household appliance according to the invention consists of an oven 1 (for example a combined baking oven, i.e. conventional type plus microwaves or conventional type plus steam, etc.); such an oven 1 is fitted with the above microprocessor based control system 2, having the same features as previously described.

- 25 As stated, the control system 2 is provided to manage the conventional control means, which allow the user to use the oven 1 also apart from the remote control 9. Such conventional control means comprise usual push-buttons, keyboards, displays, etc., which are known as such and available on the control panel 3 of the oven 1.

In the case of Fig. 3, the control system 2 has a proper additional software, being stored in the area A of a permanent memory M (for instance of the ROM type), capable of adequately interpreting the controls from a remote control 9, so that the control system itself may enable performance of the additional programs already
5 codified in the memory means M. In the case of the system described with reference to Fig. 3, it is preferable in fact that also the information required to perform the additional functions of the household appliance should be contained in the permanent memory means of the control system, since the limited memory means of a conventional remote control do not allow storage of a considerable volume of
10 information.

At any rate, such limit can be overcome with the use of likely additional memories, for instance in the form of magnetic cards or solid state electronic memories (e.g. as those used on cellular telephones).

In Fig. 4 a remote control indicated with 9A is represented, which has a reader of
15 additional memories 10, for instance magnetic type cards, onto which several recipes are stored

Under this frame, it can also be thought of the use of a single remote control being capable of controlling the additional functions of a number of different household appliances according to the invention, to which relevant cards 10 will be associated,
20 or for the case in which various operating programs for one same household appliance (e.g. associated with various cooking recipes, in the instance of a baking oven) may be contained on several cards 10.

Anyway, irrespective of the approach being chosen, if a remote control is used to activate a given cooking program available in the memory of the remote control 2, it
25 will be enough to digit for instance a numerical code associated with the relevant apparatus program and press a confirmation key to enable transmission of the codified control data from such a program to the infrared receiver 4A of the oven, and from here to the control system 2. As an alternative, the remote control could

foresee some dedicated keys calling for specific additional functions or programs.

The characteristics of the present invention and its advantages are clear from the above description.

The substantial advantage of the invention, which also represents its most
5 significant element, concerns the user and refers to a simplification of the usage procedures for the household apparatus. since the additional functions or programs tending for their own nature to increase the managing complexity for the user, are simplified by the use of said external electronic device (for example a Personal Computer or other dedicated device. such as a remote control).

10 A second advantage for the user is the possibility for the latter to initially purchase a basic version of the household apparatus. and then add the additional functions. by buying the relevant "control means".

Moreover. should the user already have an electronic device capable of managing the information associated with the additional functions of said household
15 appliances (e.g. a Personal Computer). the cost required to convert a basic version of the appliances into an improved one will be minimized. since it only involves the interface module between them and the external electronic device.

A further advantage of the invention is of a commercial nature. and relates to the possibility of handling with household appliances appearing more attractive in their
20 basic version. due to their "expandable" functions. and therefore more competitive compared to the known household appliances having equal performances (since the presetting for the expansion of functions does not entail additional costs) and which in the expanded version. acquire supplementary functions. so assuming a strongly competitive position as high-class level appliances on the market.

25 It is obvious that many changes are possible for the man skilled in the art to the household apparatus described by way of example. without departing from the innovative spirit of the inventive solution.

For instance. in a preferred embodiment of the invention. the external electronic

device can be used for updating the clock of the household appliance.

In the instance of an oven, due to obvious reasons of thermal stress, it is not advisable according to the prior art to equip the appliance with a battery clock, to protect it against electric blackouts, due to temperature and need of battery
5 maintenance.

For this reason, following a mains blackout, in the daily practice, the oven clock display will systematically flash waiting for reset by the user.

According to the invention, such an inconvenience can be solved in a very simple manner with an external electronic device provided with its own battery (usual
10 features of PC's or remote controls) and also with a clock. This means that, in order to reset the oven clock it will be enough to enter a simple instruction in the PC or press a proper push-button on the remote control

According to a further variant embodiment of the invention, the control system 2 can also be associated with a data transmission system for transmitting proper
15 information concerning the appliance operation status to the PC 5 or remote control 9 or 9A (that will be equipped with a proper receiver and display), e.g. the parameters identifying the progress status of a performed program, for instance, always in the case of cooking, such data could refer to the current temperature, active function, time elapsed since baking start, estimation of the time still required
20 to cooking end, estimation of the food cooking level, likely advice for the user if a manual operation is required, diagnostic messages for technical service, and so on

Finally, a dedicated remote control may also be provided, specifically for technical assistance, allowing the technical assistant to control specific diagnostic functions of the household appliance, duly codified in the memory means of the control
25 system, e.g. to check operation of the internal devices of the household appliance.

However, it is obvious that many other changes are possible for the man skilled in the art to the electronic controlled household apparatus described by way of example without departing from the novelty spirit of the inventive idea.

CLAIMS

1. Control system for a household appliance, said household appliance (1) comprising an electronic control unit (2) and selection means (3), located in particular on a control panel, for the selection of predetermined basic functions of the appliance (1), where in said electronic unit (2) first information are codified for
5 said apparatus (1) to perform said basic functions, in function of the selection made through said selection means (3), characterized in that in said electronic unit (2) second information are codified, which allow the apparatus (1) to perform additional functions in respect to the ones that can be selected through said selection means (3), and that said electronic unit (2) is prearranged for its interfacing with an
10 external and optional electronic device (5; 9; 9A) being provided to enable and select the execution of said additional functions.

2. Control system, according to claim 1, characterized in that said electronic unit (2) comprises memory means (M), where in a first area (N) of said memory means (M) said first information are codified and in a second area (A) of said
15 memory means (M) information are codified, used by the control system to interpret and or convert into actions data from said external and optional electronic device (5; 9; 9A).

3. Control system, according to claim 1, characterized in that interfacing means (4; 4A) are provided for allowing the connection between said electronic unit
20 (2) and said optional electronic device (5; 9; 9A).

4. Control system, according to claim 3, characterized in that said interfacing means comprise an optional interfacing module (4; 4A), to be associated with said electronic unit (2).

5. Control system, according to at least one of the previous claims,
25 characterized in that said electronic unit (2) comprises a microcontroller having a communication line to external devices.

6. Control system, according to at least one of the previous claims.

characterized in that said electronic unit (2) is provided to transmit information relating to the operating status of the household appliance (1).

5 7. Control system, according to the previous claim, characterized in that said optional device (5; 9; 9A) is provided for receiving said information relating to the operating status of the household appliance (1).

8. Control system, according to at least one of the previous claims, characterized in that said optional device (5; 9; 9A) comprises a display device.

10 9. Control system, according to claims 7 and 8, characterized in that said optional device is provided for displaying on said display device said information relating to the operating status of the household appliance (1).

15 10. Control system, according to at least one of the previous claims, characterized in that said household appliance (1) comprises a clock, that said optional device (5; 9; 9A) comprises a battery and a relevant clock, and that said optional device (5; 9; 9A) is provided for updating the clock of the household appliance (1).

11. Control system, according to at least one of the previous claims, characterized in that said optional device (5; 9; 9A) is a Personal Computer (5).

20 12. Control system, according to the previous claim, characterized in that said Personal Computer (5) is connected with said household appliance (1) through a data bus, in particular by conveyed waves.

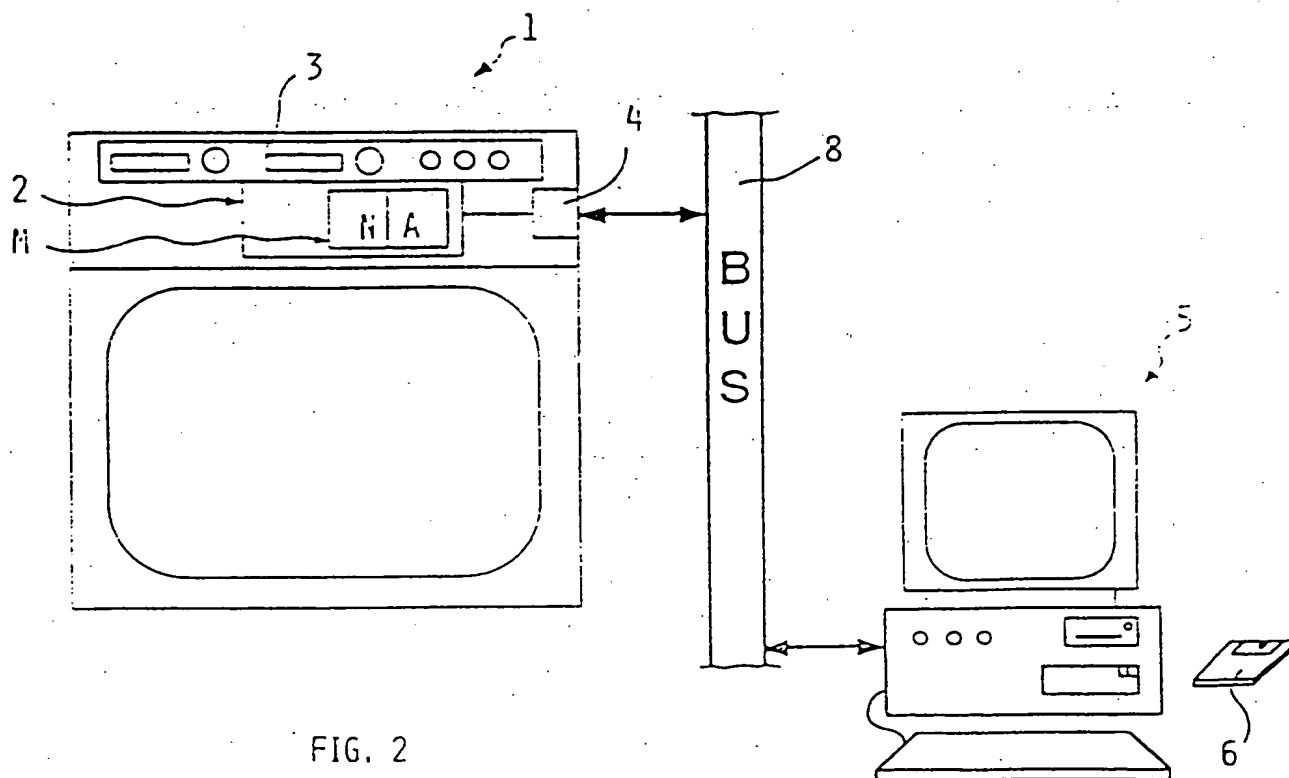
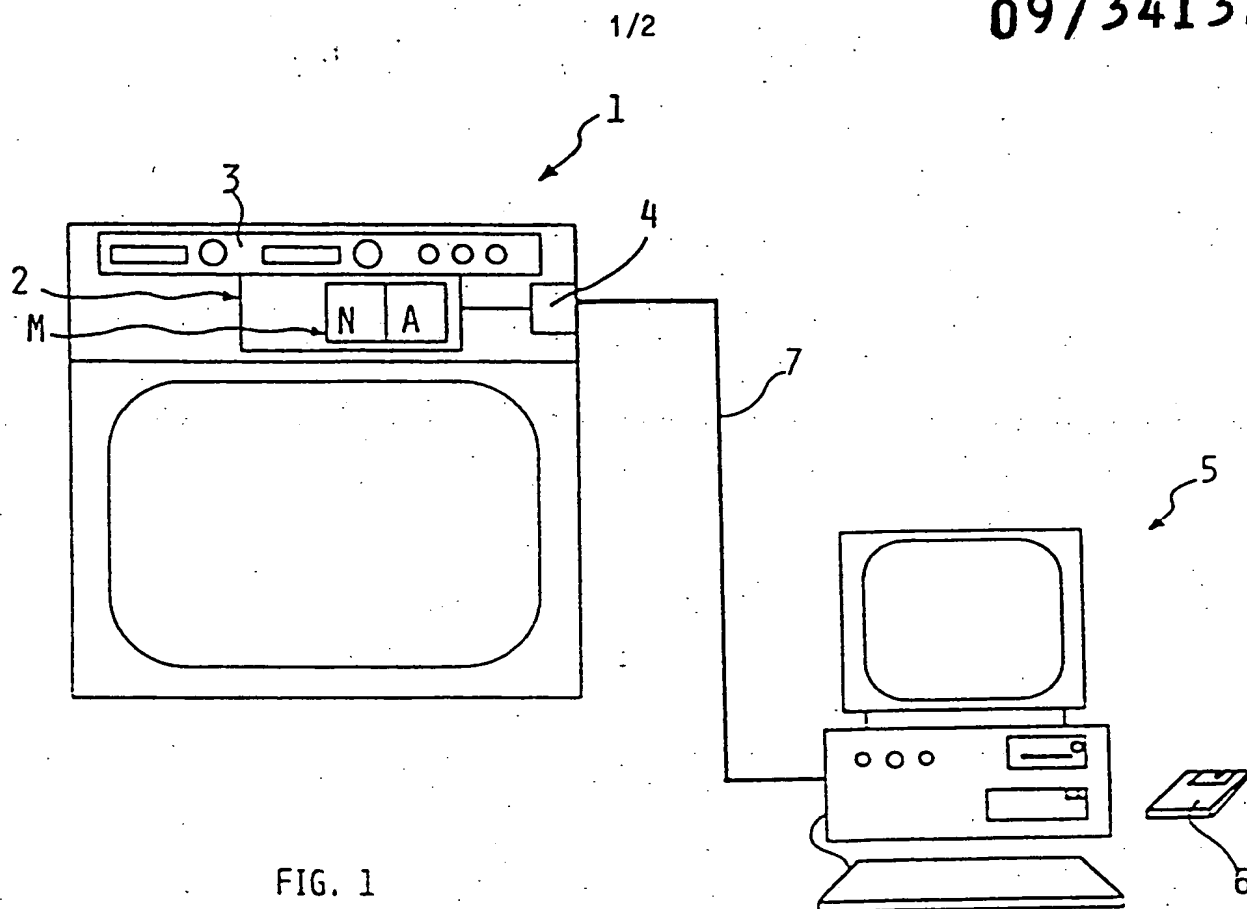
13. Control system, according to at least one of claims 1 to 9, characterized in that said optional device (5; 9; 9A) is a remote control (9; 9A), in particular of the infrared or radio-frequency type, and that said interfacing means comprise a signal receiver (4A) from said remote control.

25 14. Control system, according to at least one of the previous claims, characterized in that a management program is provided, supplied on a suitable support (6), for said optional device (5; 9; 9A), for an easy setting of said additional functions through said optional device (5; 9; 9A).

15. Control system, according to the previous claim, characterized in that said management program provides control routines for avoiding the wrong or improper programming of the household appliance (1).

5 16. Control system, according to the previous claim, characterized in that said management program comprises utilities functions for the use of the household appliance (1), such as a cook-book for the use of an oven or a database for the food preserved in a refrigerator.

10 17. Method for programming an electronically controlled household appliance (1), of the type able to perform basic functions and sophisticated additional functions, where said basic functions can be programmed by standard control means (3) comprised in said household appliance (1), characterized in that the programming of the sophisticated additional functions, that for their nature tend to increase the managing complexity of the household appliance (1) for the user, is simplified by the use of an optional and dedicated external electronic device (5: 9:
15 9A)



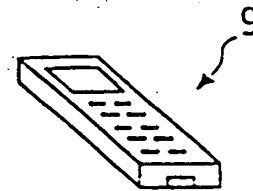
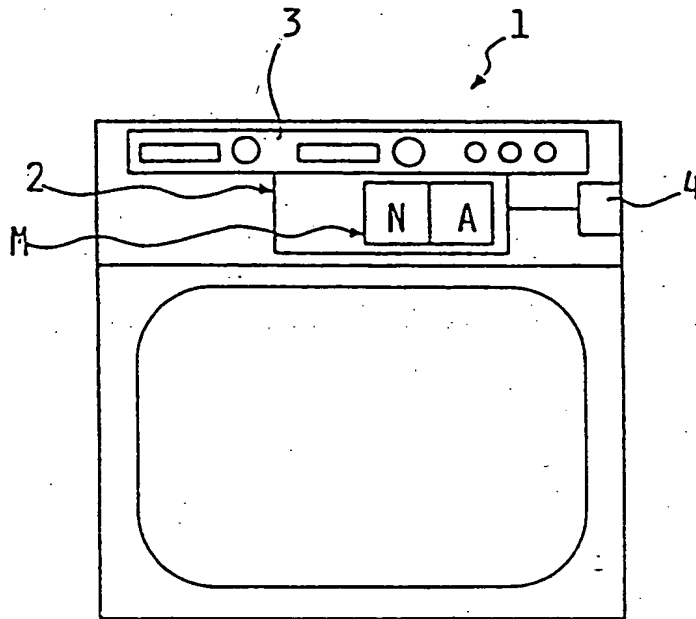


FIG. 3

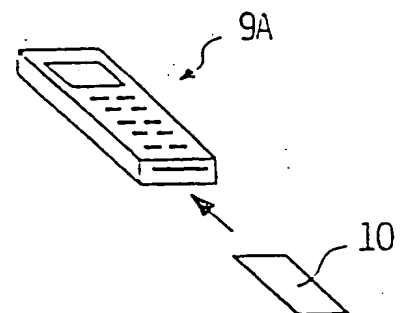
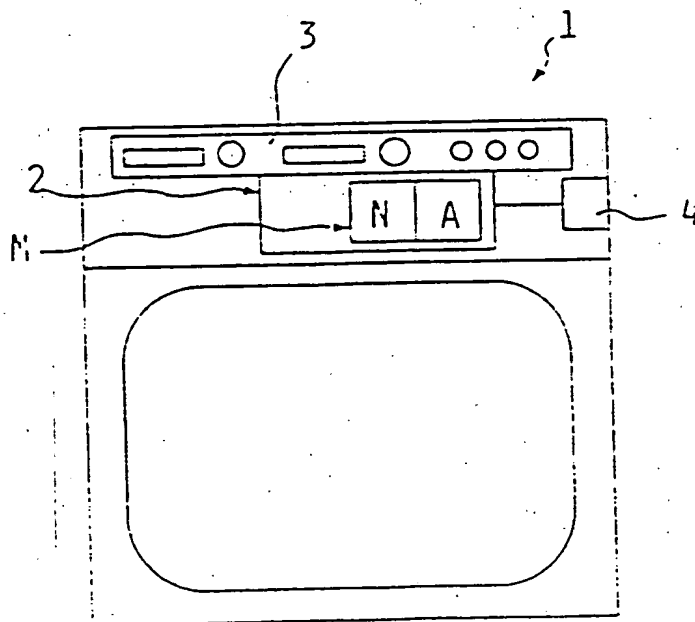


FIG. 4